Rail Baltica

BIM (and more) implementation for the Rail Baltica Global Project – Phase 1

Co-financed by the Connecting Europe Facility of the European Union

Raitis Bušmanis 2020-02-04

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About me

Raitis Bušmanis

BIM Team Leader

- In RB Rail AS since January 2018
- Before working at Trimble Solutions Oy
- “Involved” with BIM since 2012

Agenda

- Development of Rail Baltica project
- Digitalization
- First results
- First acknowledgements

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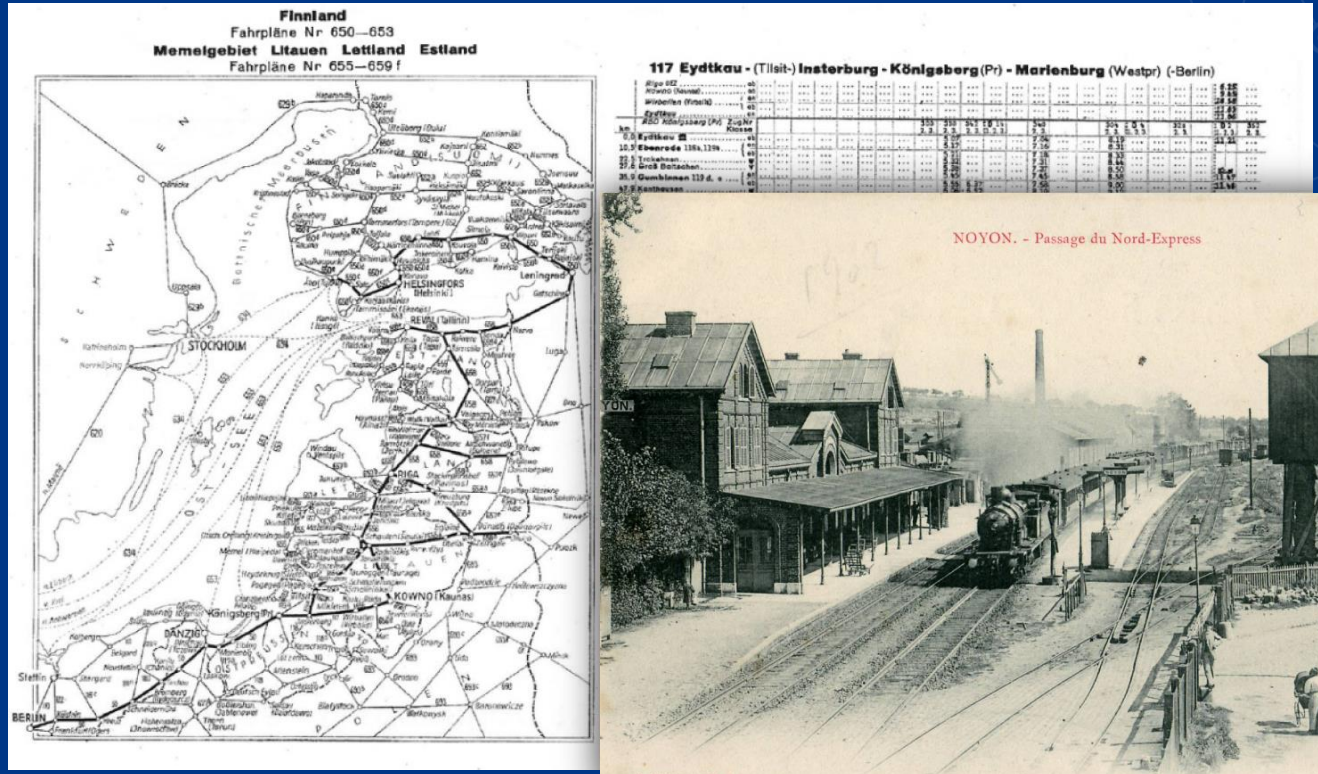
EE-DS1-DPS2 (Alu-Mälivere)

Development of Rail Baltica project

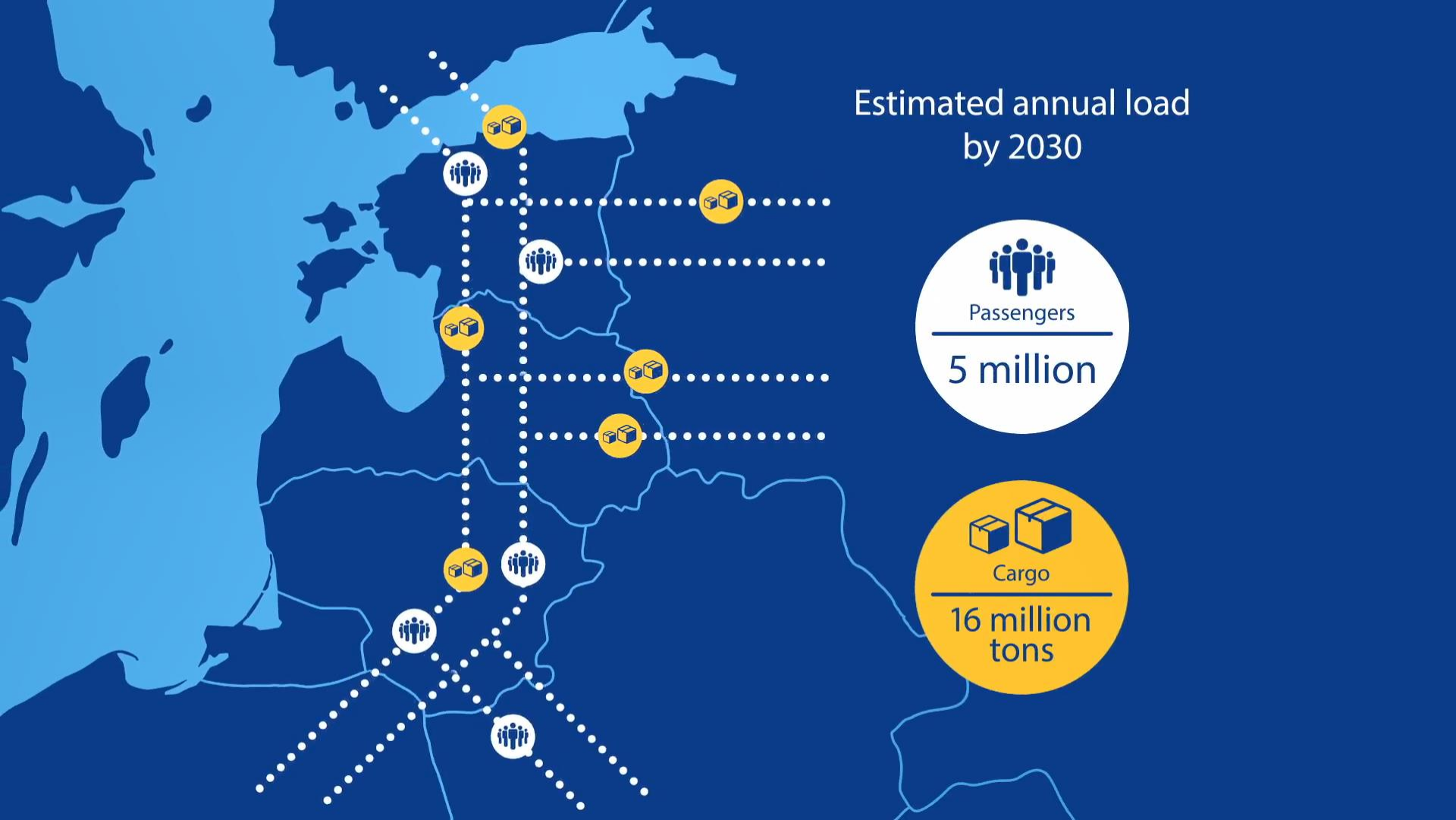
Rail Baltica

1938



Rail Baltica

The idea of Rail Baltica goes back 25 years


Estimated annual load
by 2030
Passengers
5 million
Cargo
16 million
tons

Detailed Technical Design in Estonia

Sections:

- Tallinn to Rapla
- Rapla to Pärnu
- Pärnu to Estonian/Latvian border

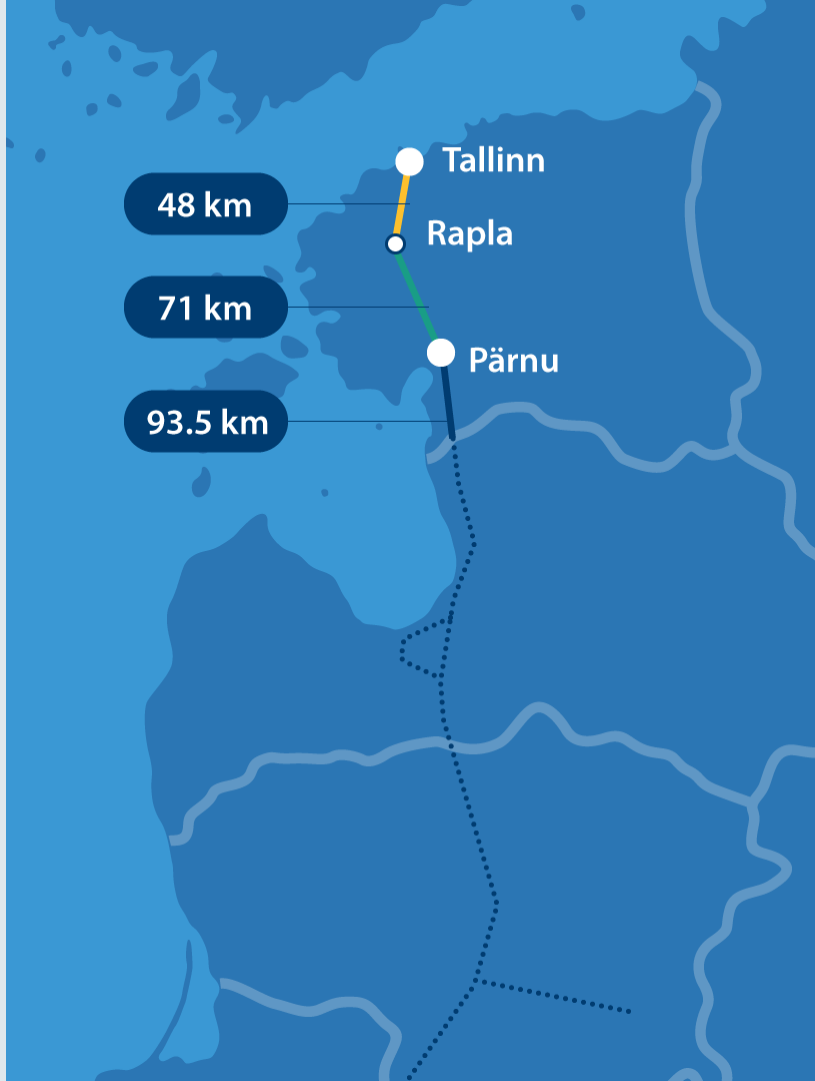
Indicative scope of works:

15 bridges

24 railway viaducts

40 road viaducts

24 ecoducts



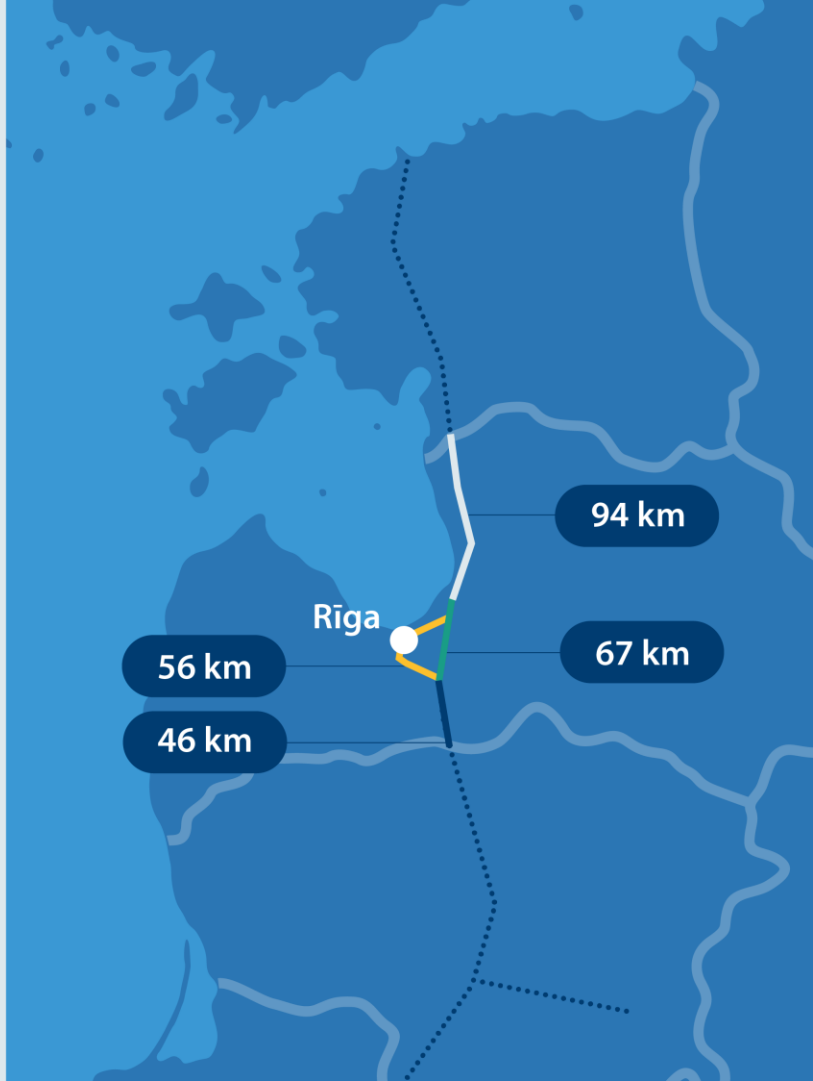
Detailed Technical Design in Latvia

Sections:

- Riga Central Section
- Vangaži to Misa
- Estonian/Latvian boarder – Vangaži
- Misa – Latvian/Lithuanian border

Indicative scope of works:

- **32** bridges
- **43** railway viaducts
- **82** road viaducts
- **10** ecoducts
- **13** segregated pedestrian crossings
- **1** tunnel



Detailed Technical Design in Lithuania

Sections:

- Ramygala to Lithuanian/Latvian state border
- Ramygala to Kaunas

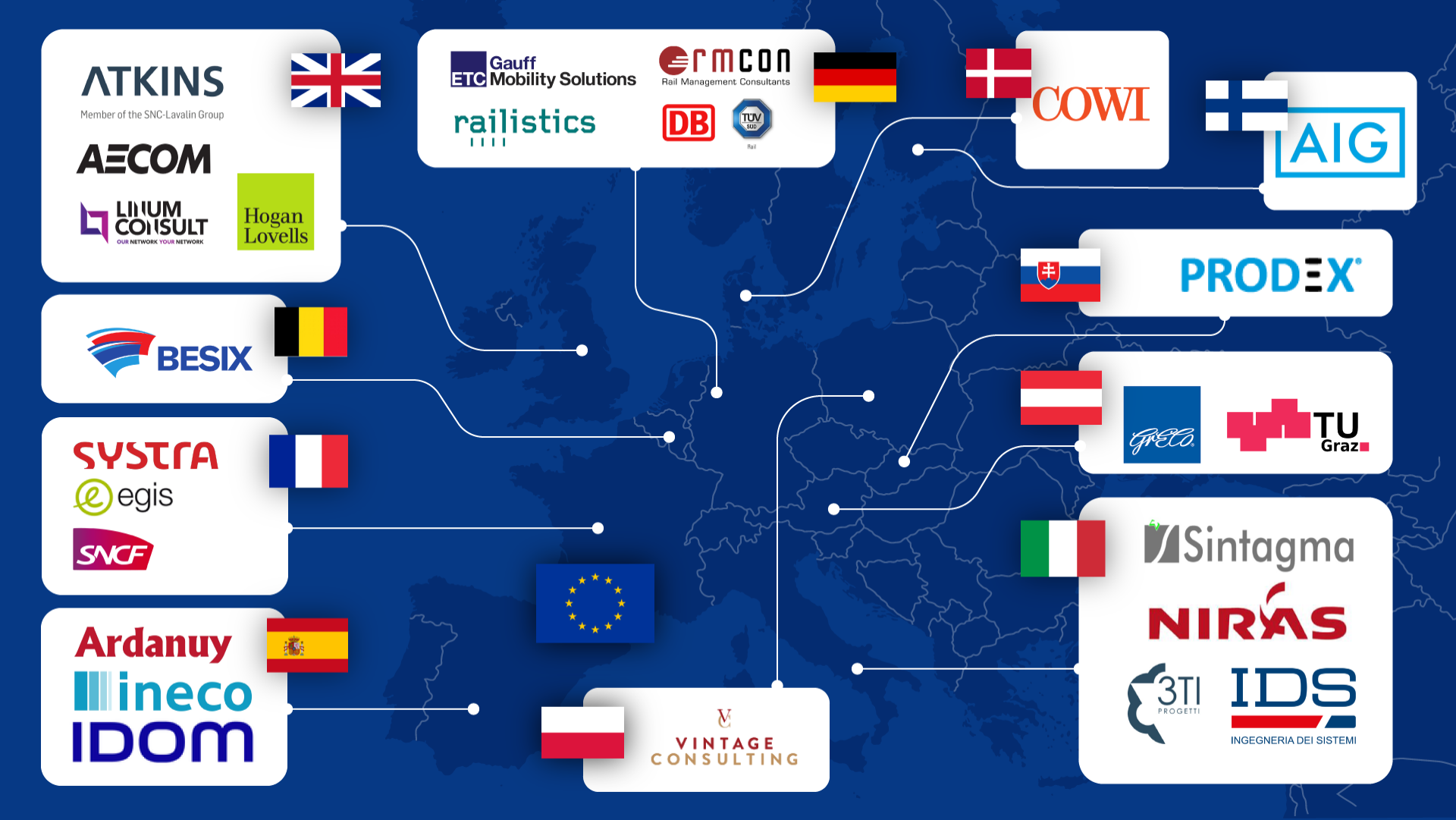
Indicative scope of works:

7 bridges

31 railway viaducts

21 road viaducts

7 ecoducts


ATKINS
Member of the SNC-Lavalin Group
AECOM
LINIUM CONSULT
OUR NETWORK YOUR NETWORK
Hogan Lovells
BESIX
SYSTRA
egis
SNCF
Ardanuy
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Gauff ETC Mobility Solutions
railistics
ermcon
Rail Management Consultants
DB
TÜV SÜD Rail
VINTAGE CONSULTING
COWI
AIG
PRODEX
GREiCO
TU Graz
Sintagma
NIRAS
3TI PROGETTI
IDS
INGEGNERIA DEI SISTEMI

Digitalization
Pärnu reisiterminali ideelahendus: AB PLUSS OÜ

Rail Baltica

Rail Baltica BIM roadmap

Developed BIM Strategy framework;

Sent a "BIM message" to the market;

Detailed set of rules, including BIM Manual;

Developing training material;

Communication with industry's professionals;

CDE and supporting technology implementation;

GIS integration;

AIM and scheduling solution integration;

Developing and defining workflows;

BEP, MIDP, TIDP;

Work with designers to check and verify their work;

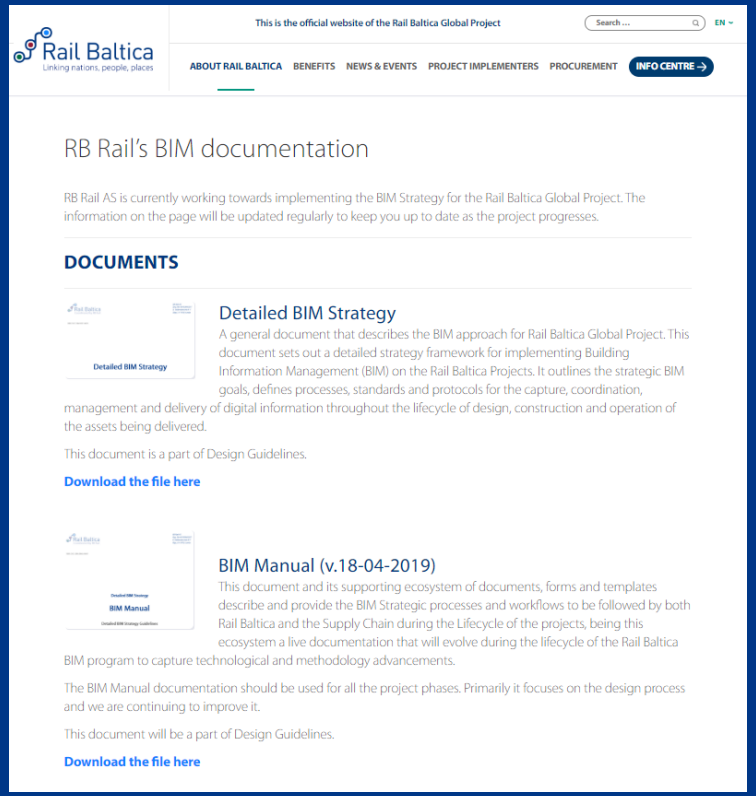
Collecting and updating asset data;

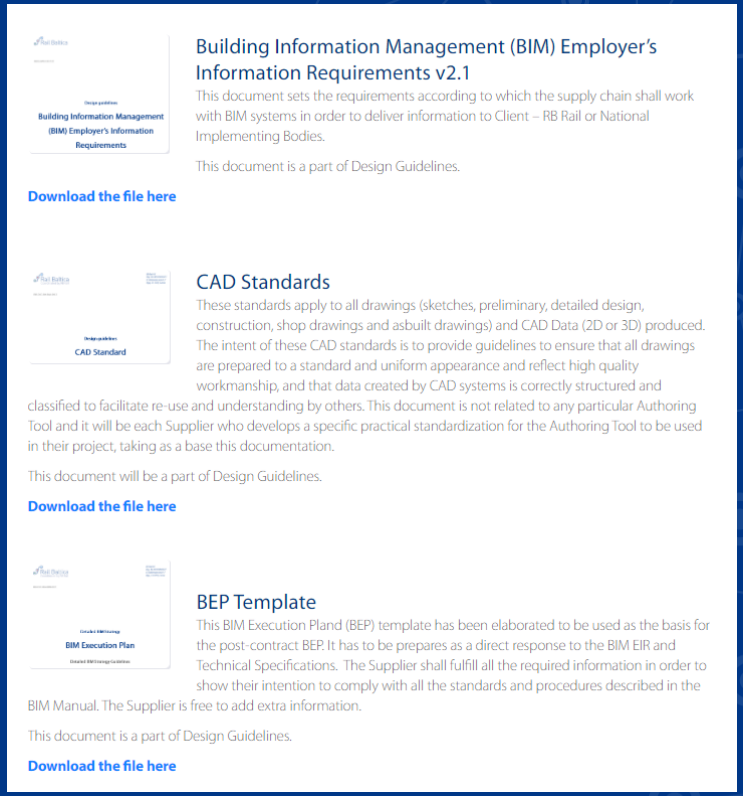
Using BIM models and data in construction;

Educating construction sector;

Handover of Project BIM data;

Utilizing Project BIM data to manage assets;



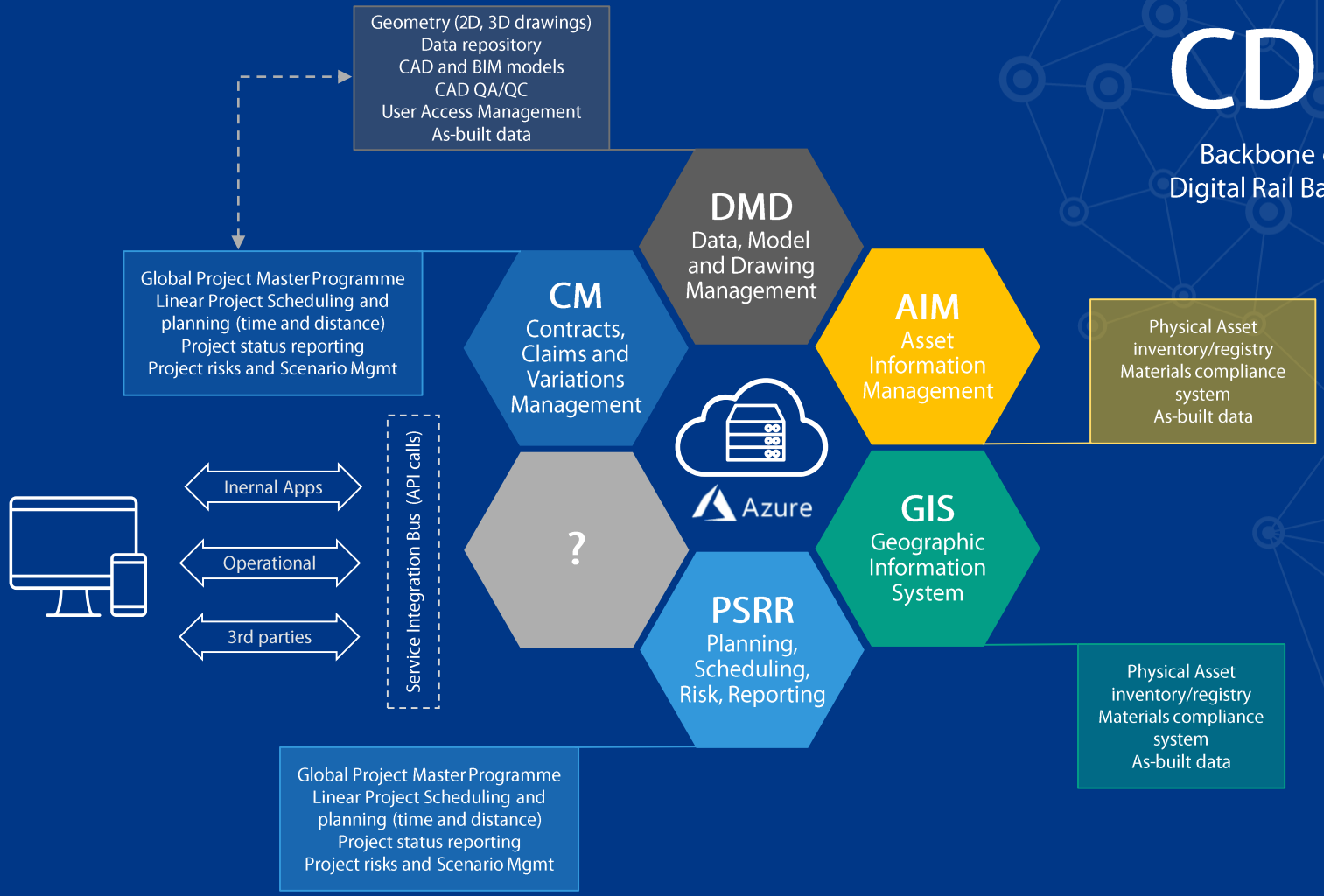


Rail Baltica's BIM documentation

http://www.railbaltica.org/rb-rail-as-bim-documentation/

CDE

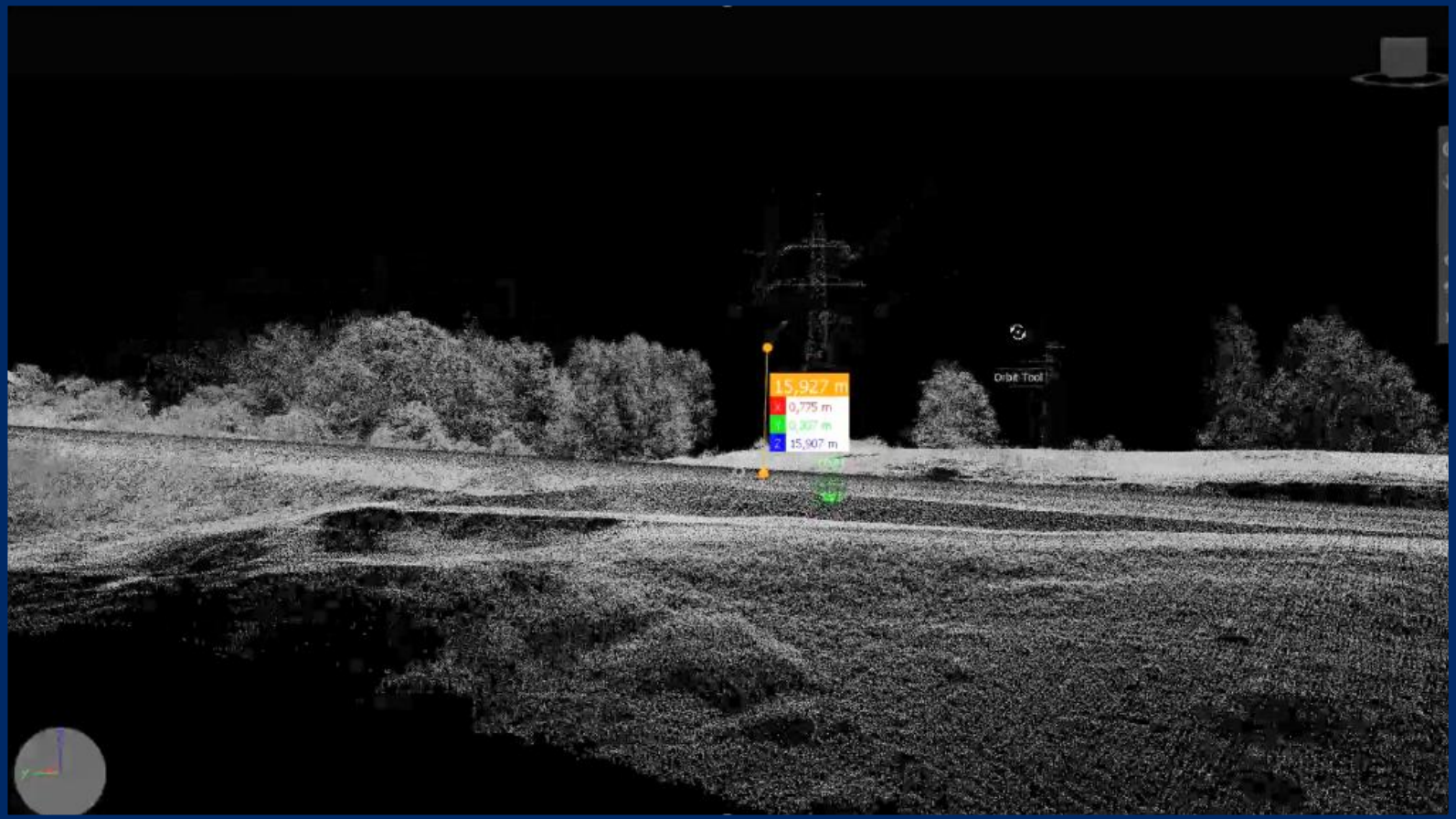
Backbone of
Digital Rail Baltica



First results
Rīga Central Station

Rail Baltica

LIDAR data as additional information – capturing existing situation



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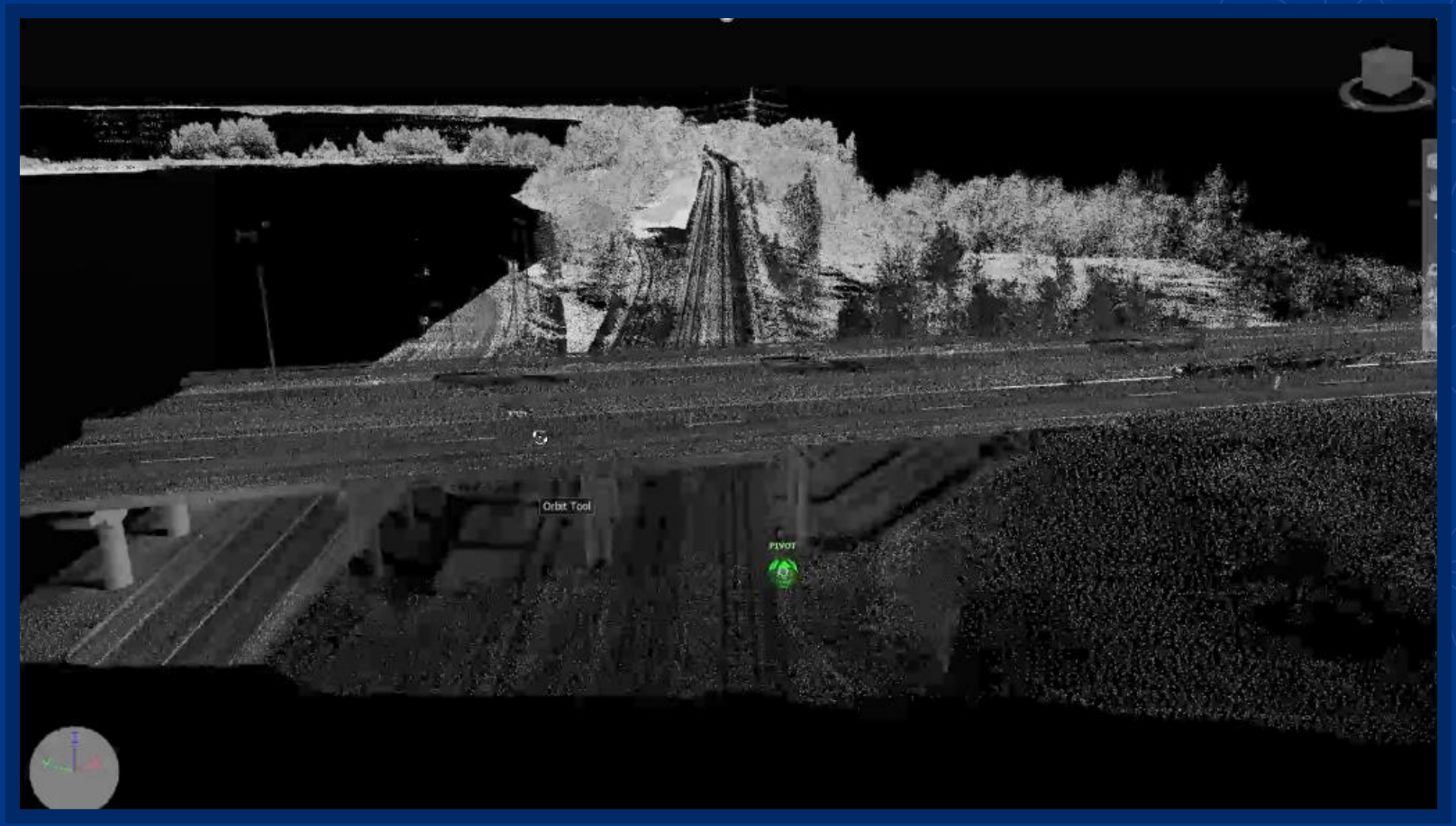

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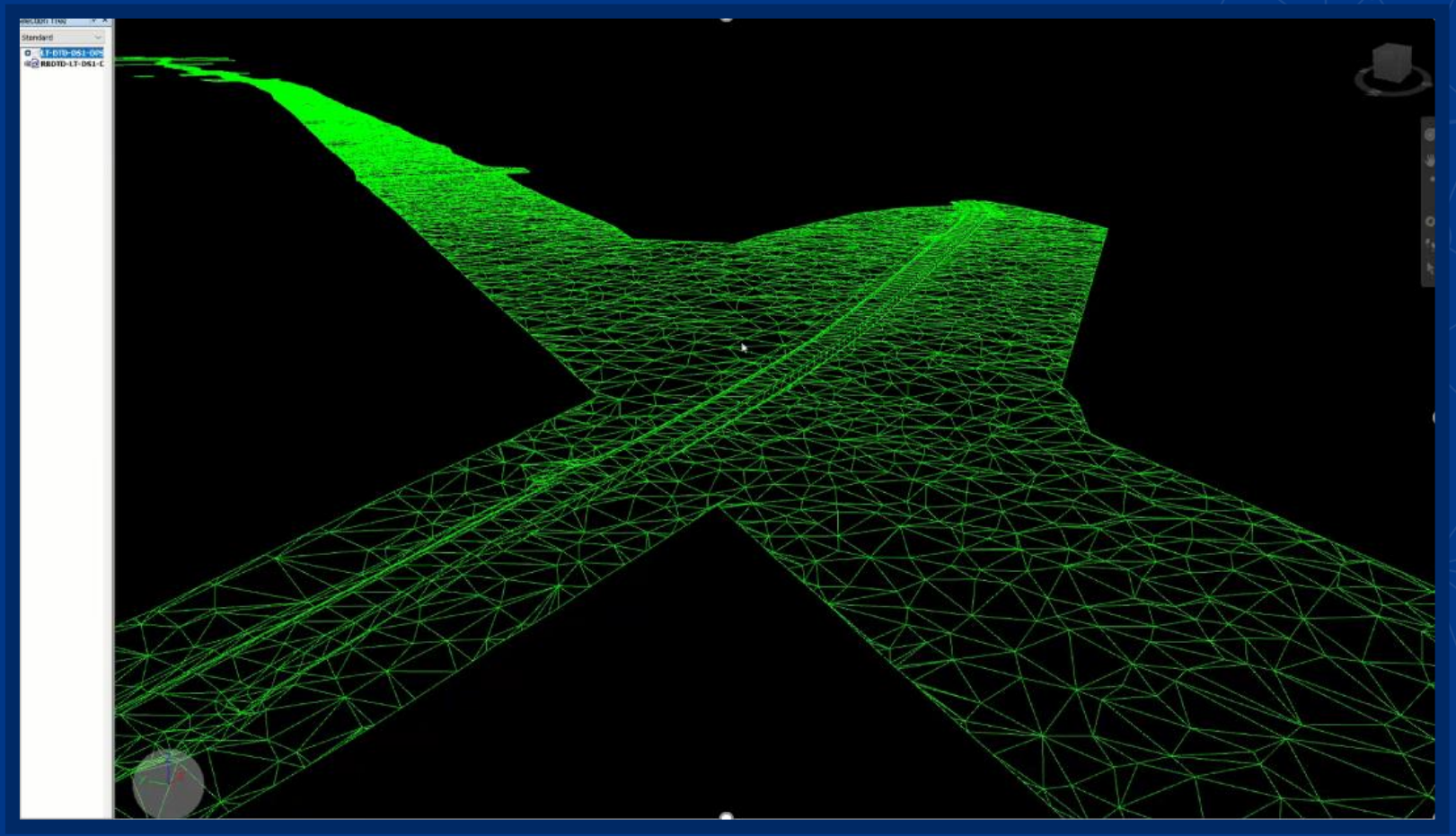
LIDAR data as additional information – capturing existing situation

Rail Baltica

LIDAR data to generate DTM



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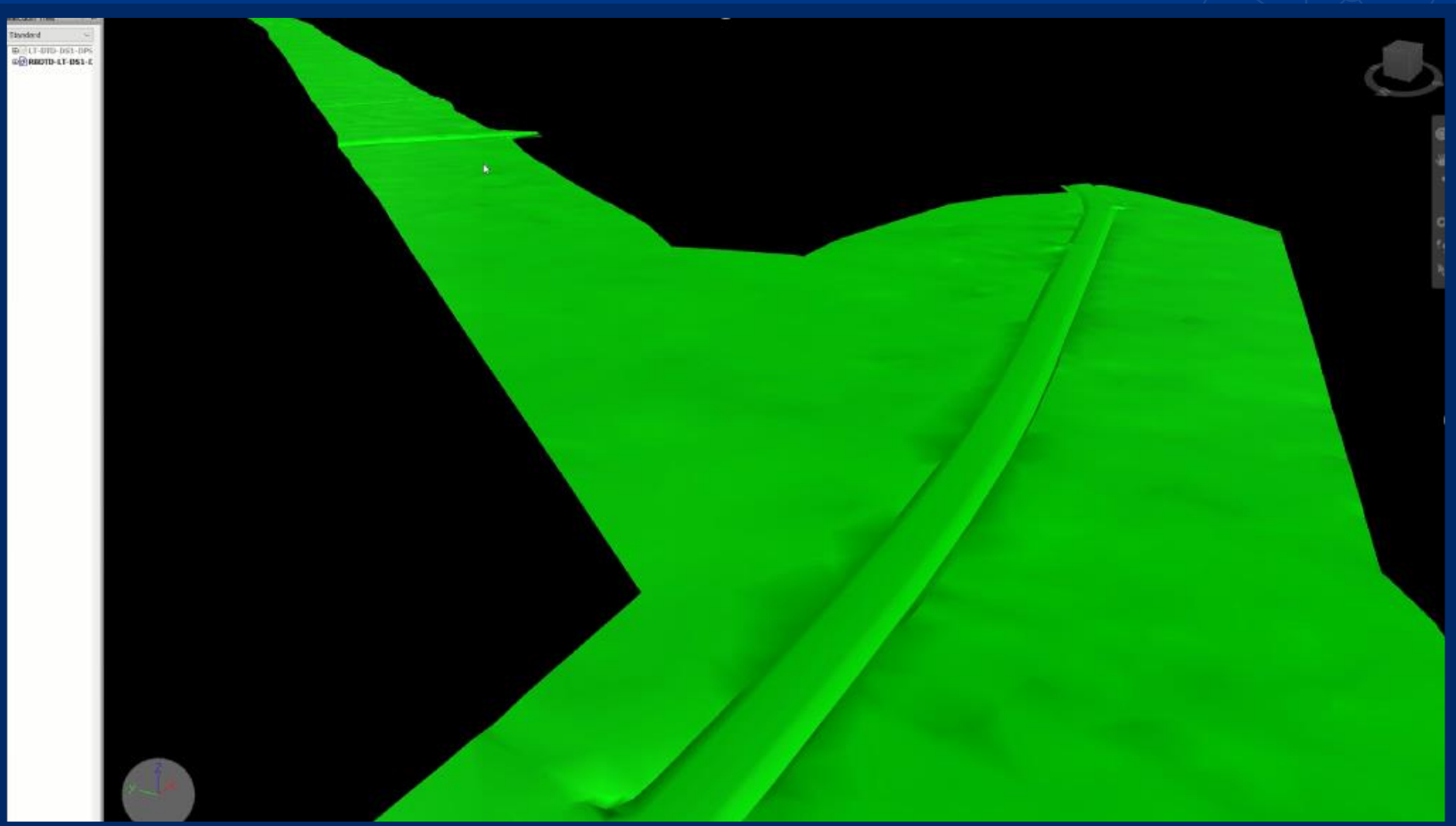

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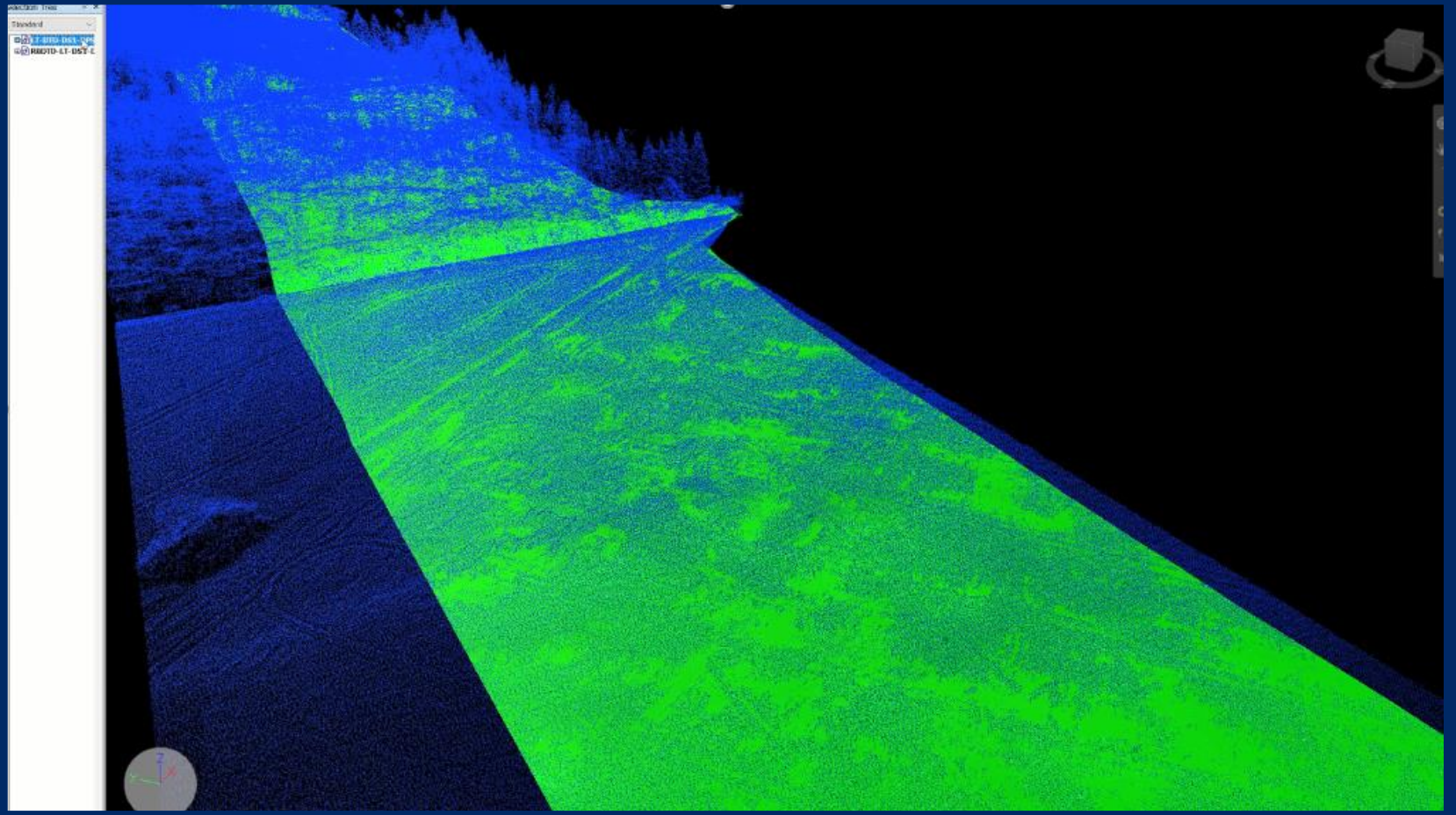

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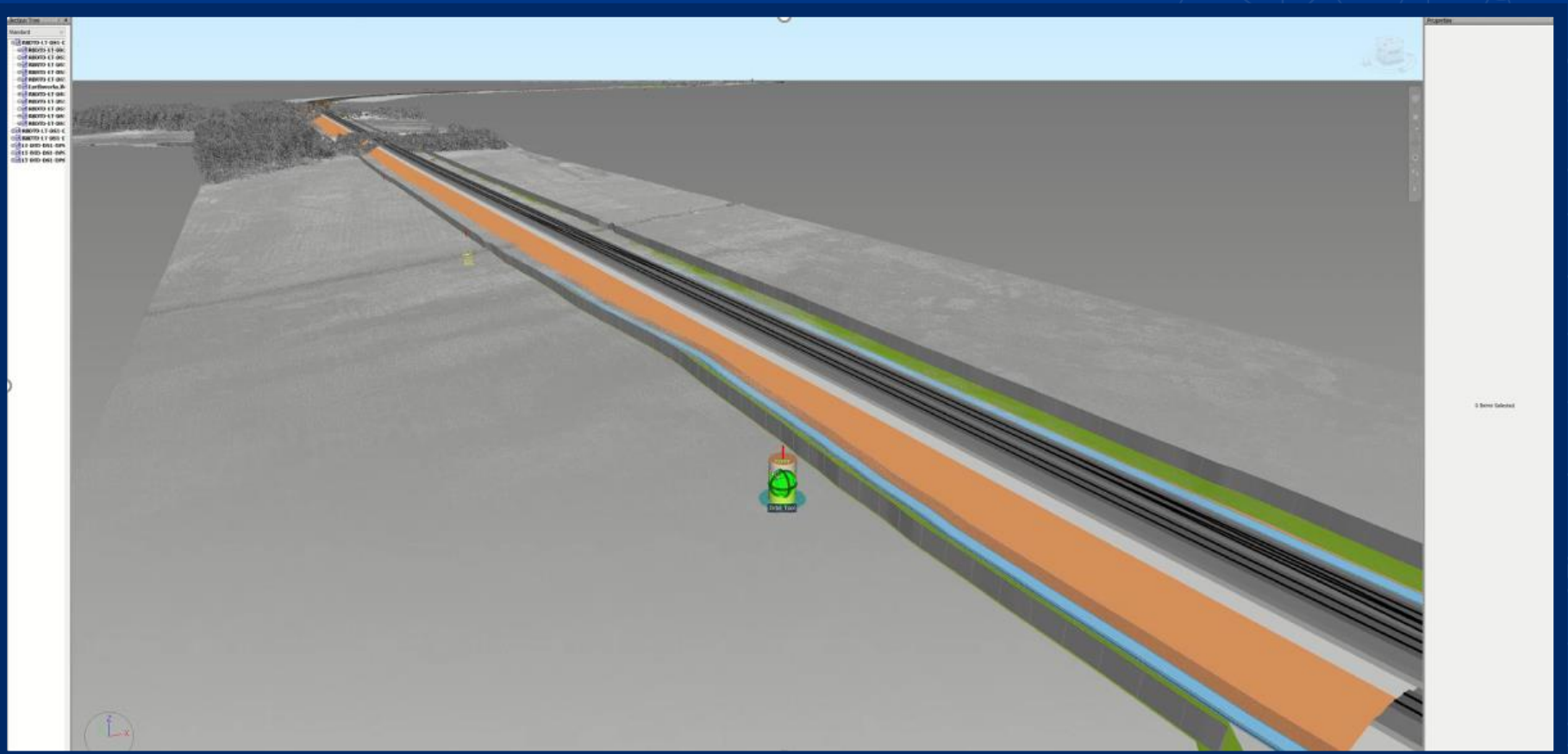

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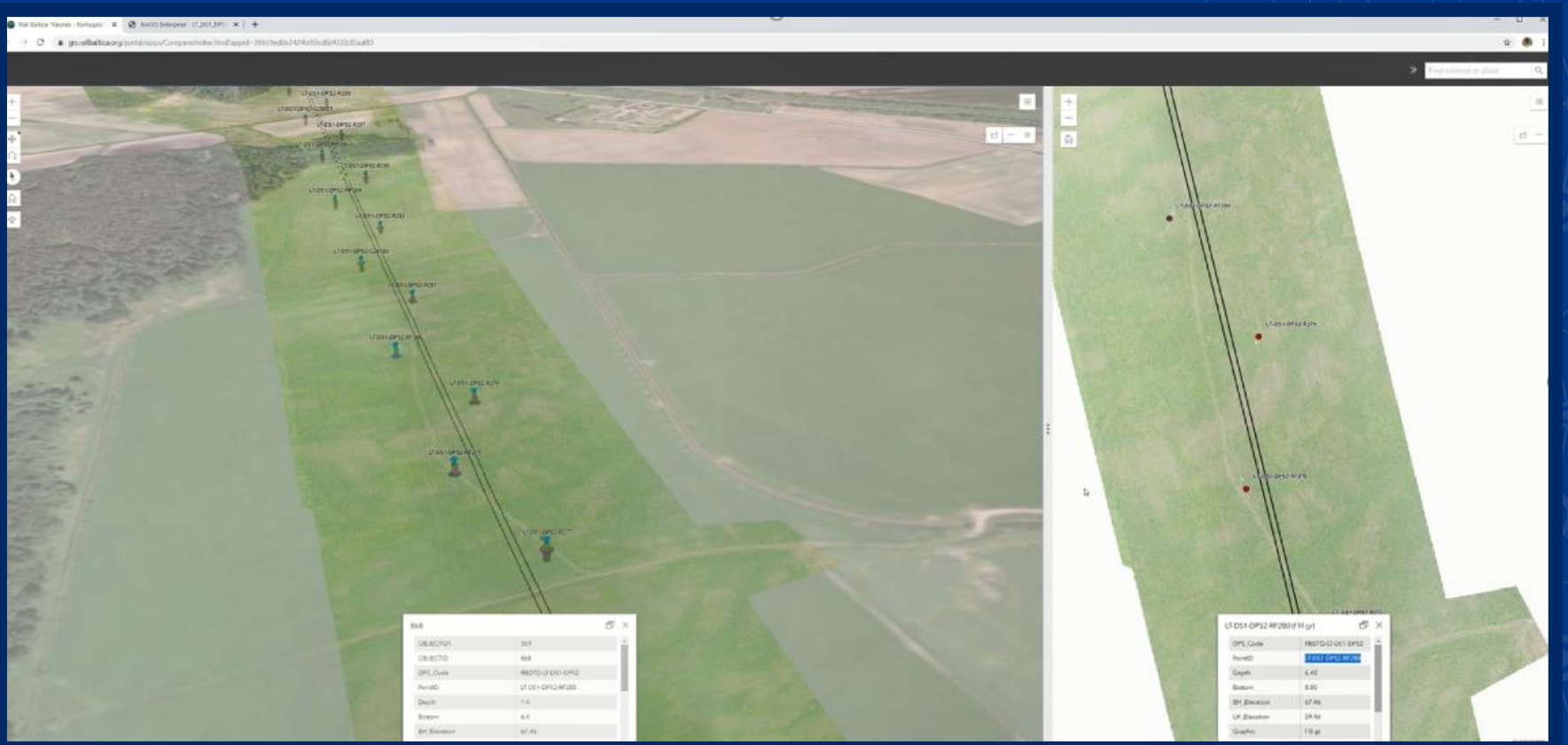
BIM and GIS – Geotechnical investigation results as an example



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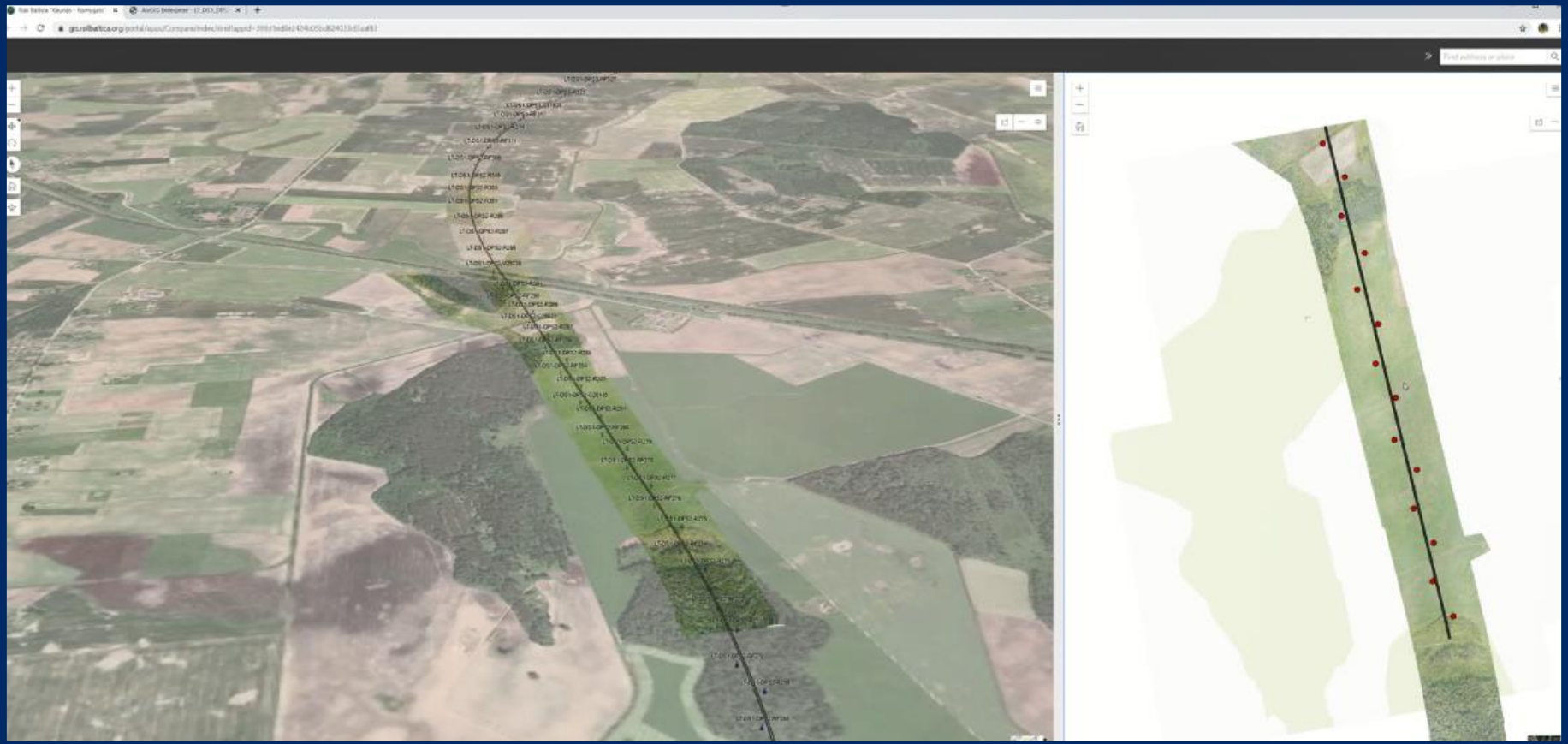

Rail Baltica

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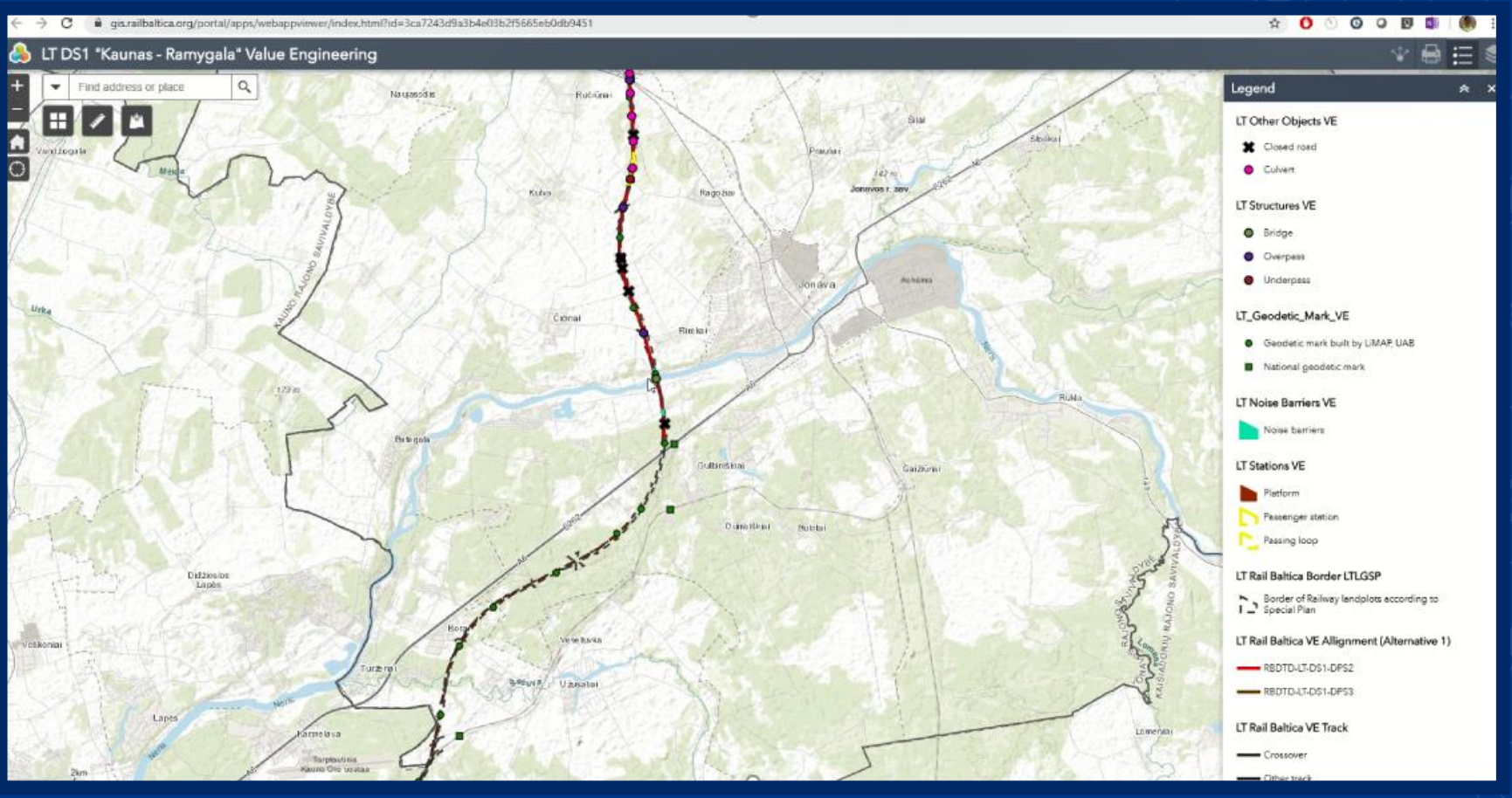

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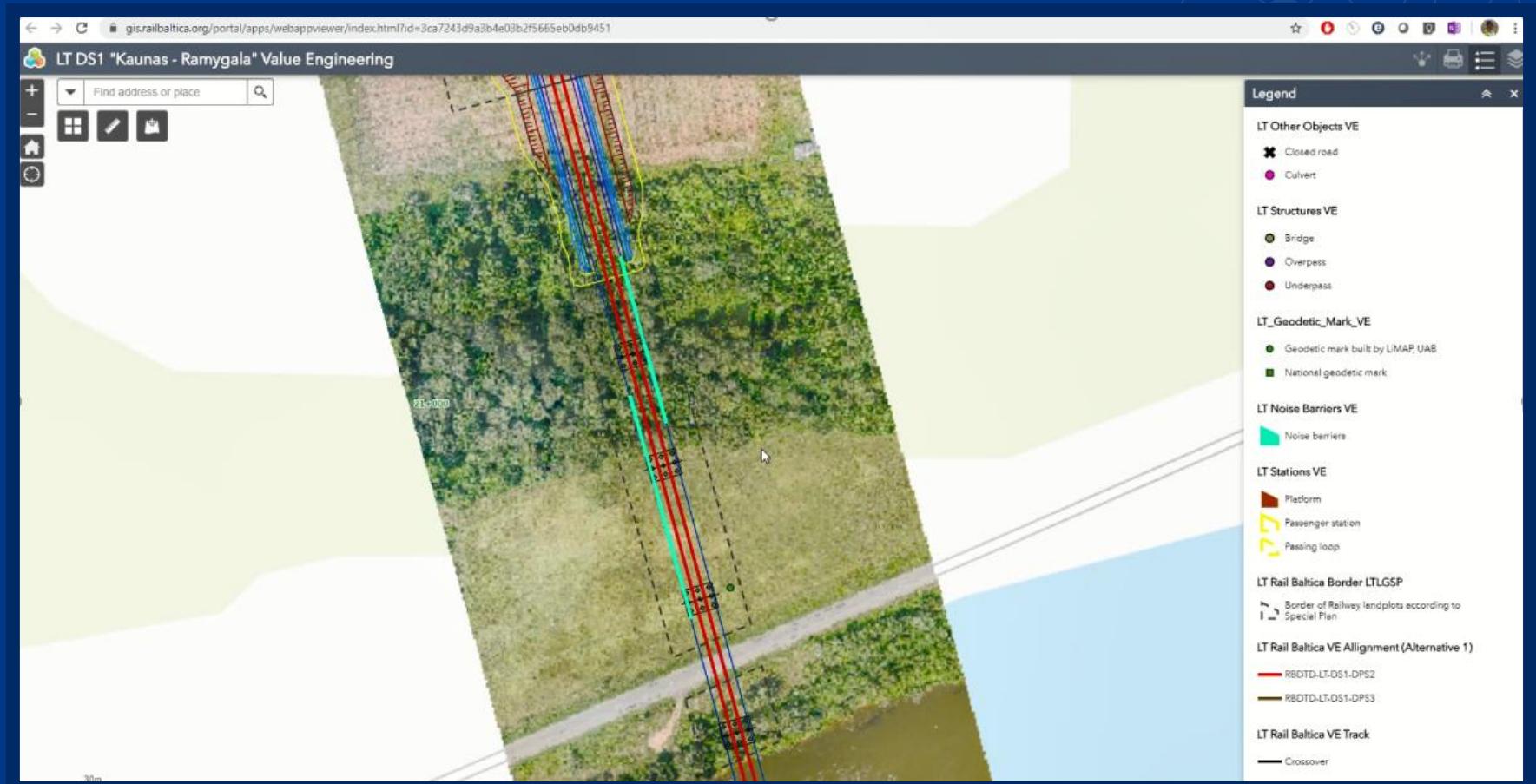
GIS – using 2D and 3D/BIM data



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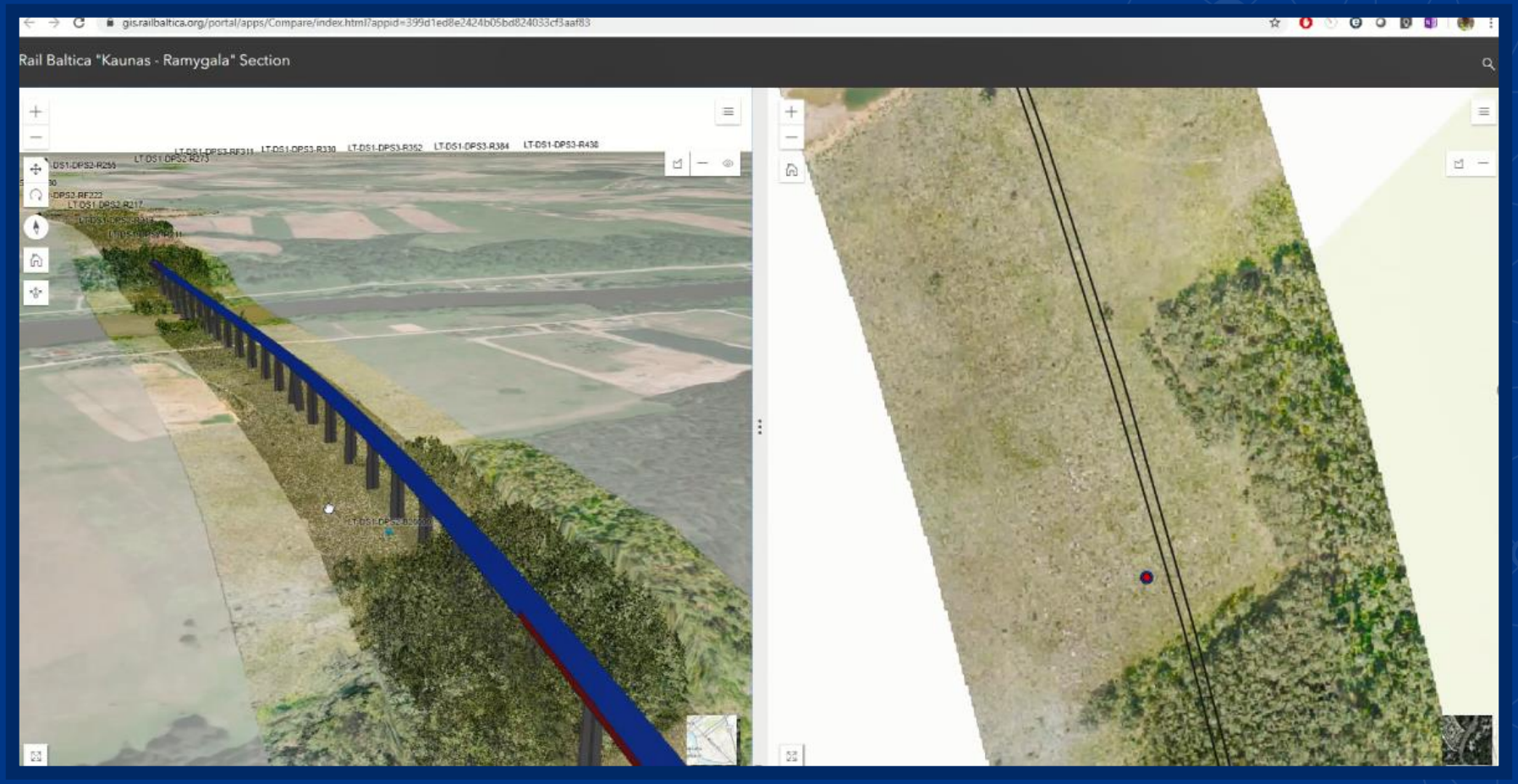

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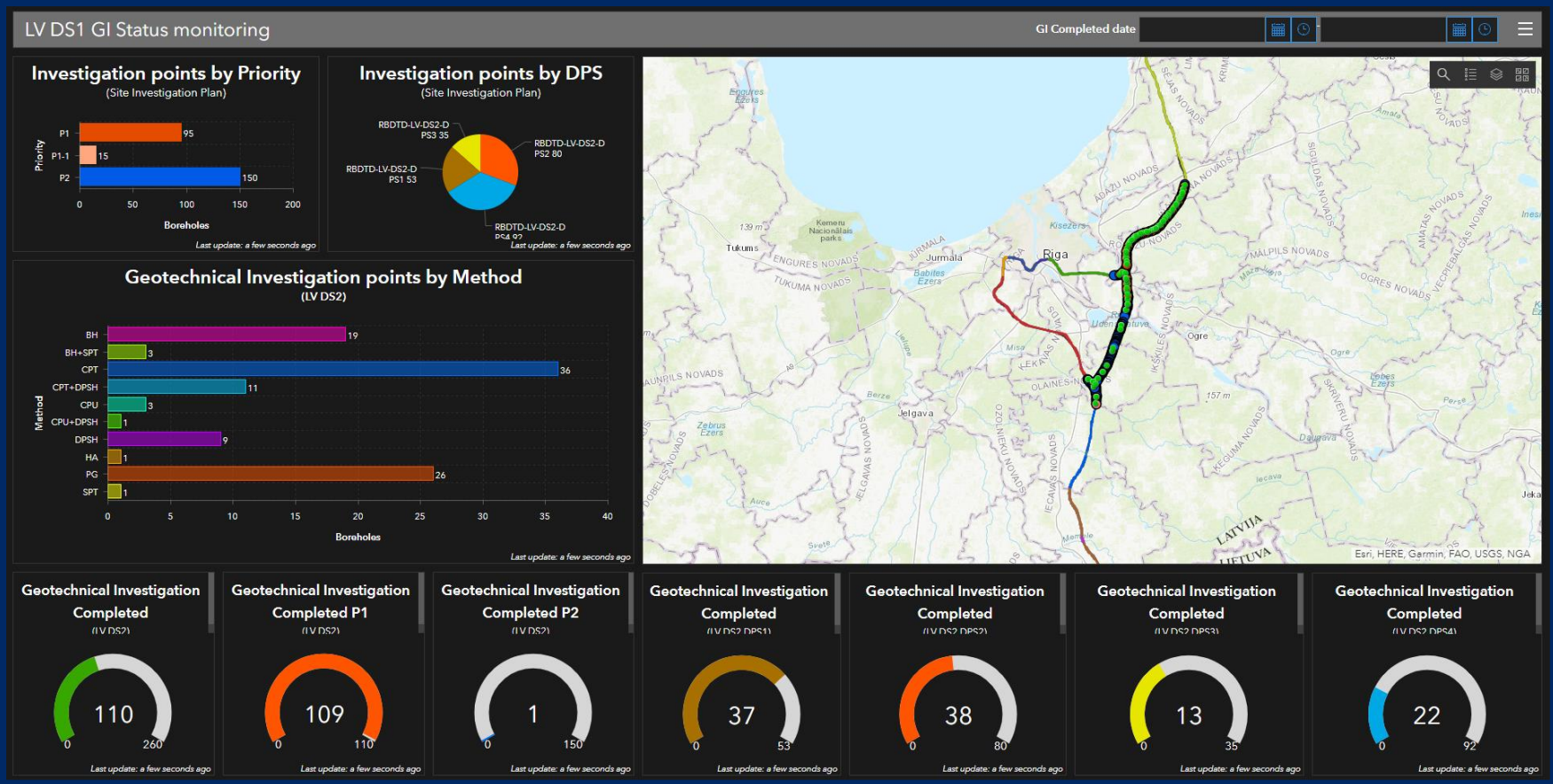

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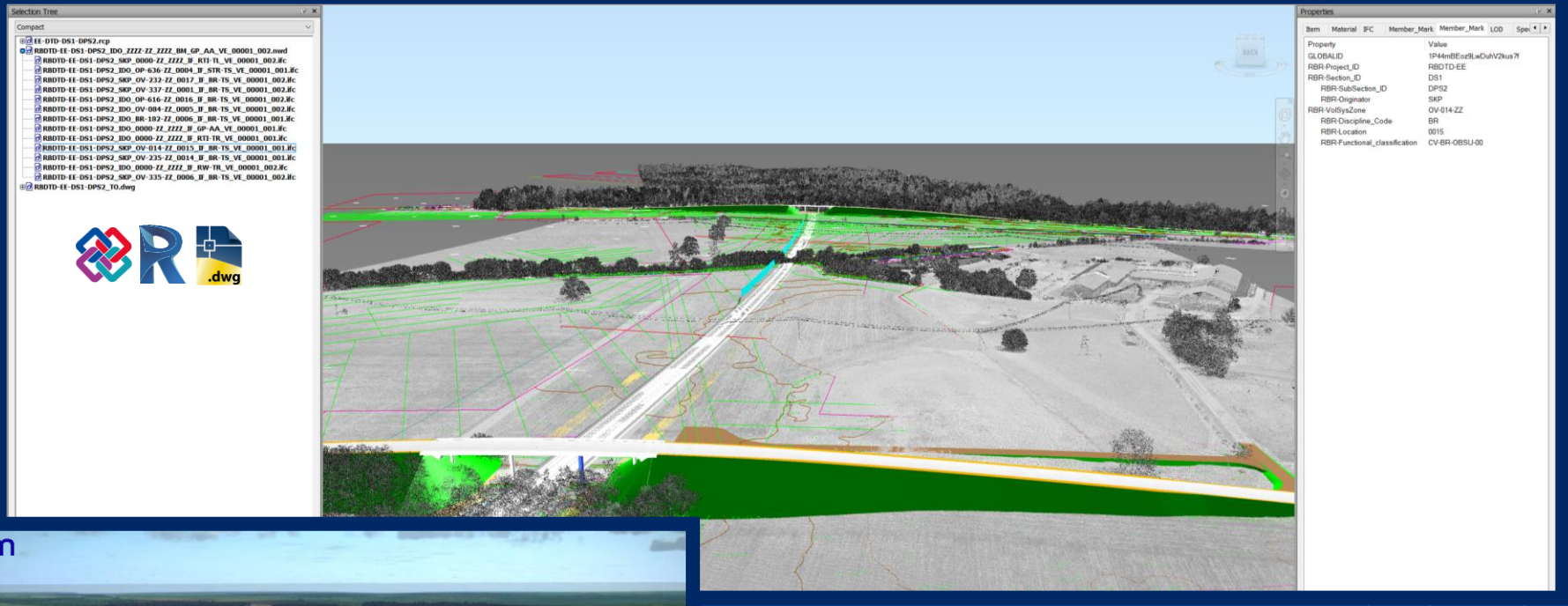
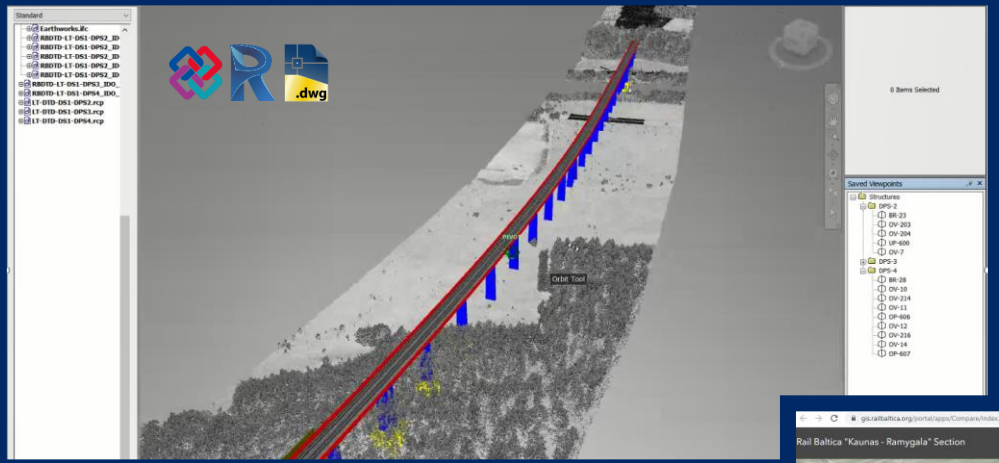
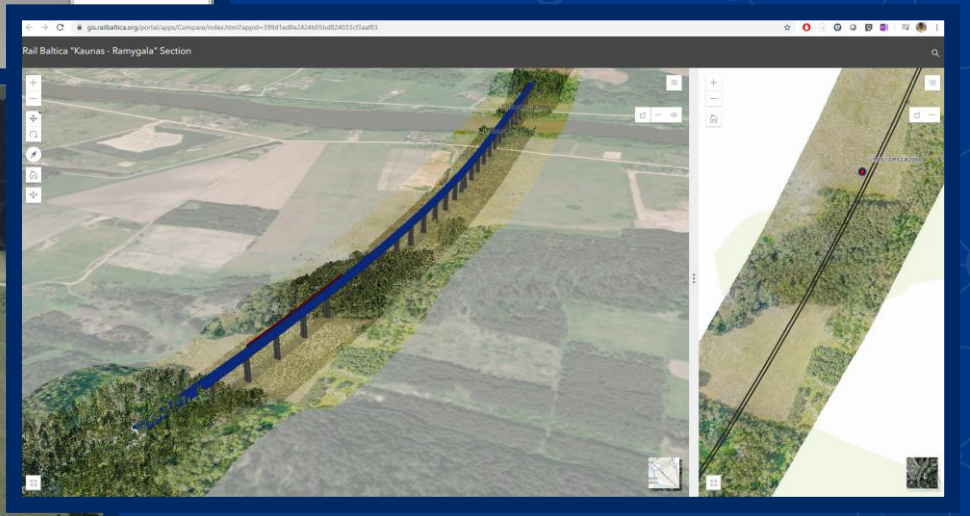
GIS – GI Status monitoring

Federated model used for visualizations



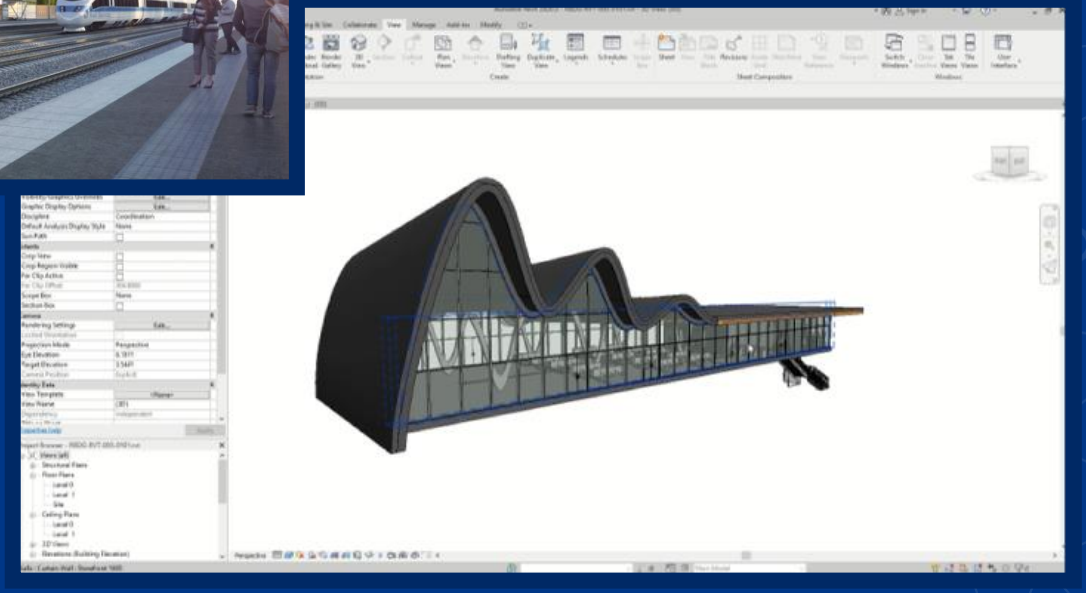
Federated model used for visualizations



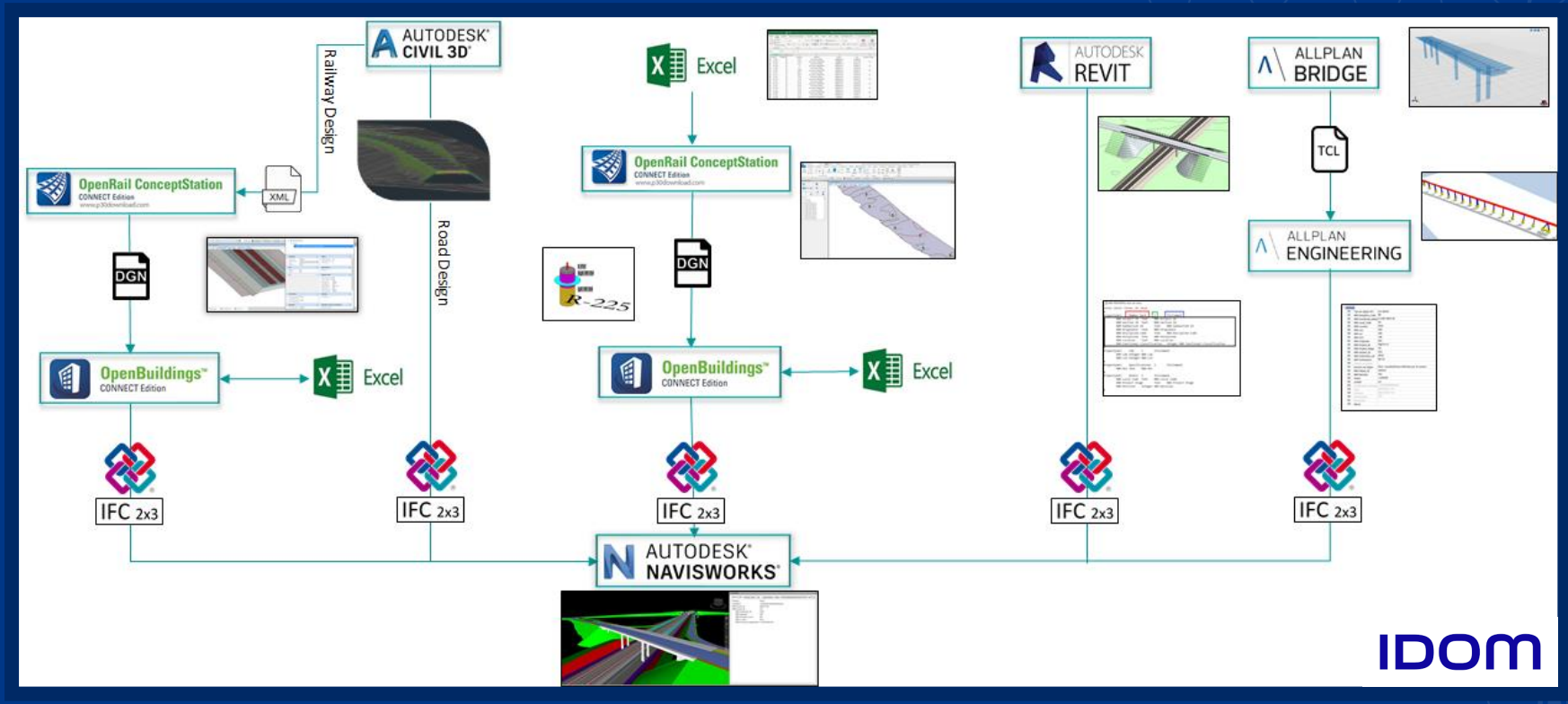


Federated model used in GIS and for visualizations

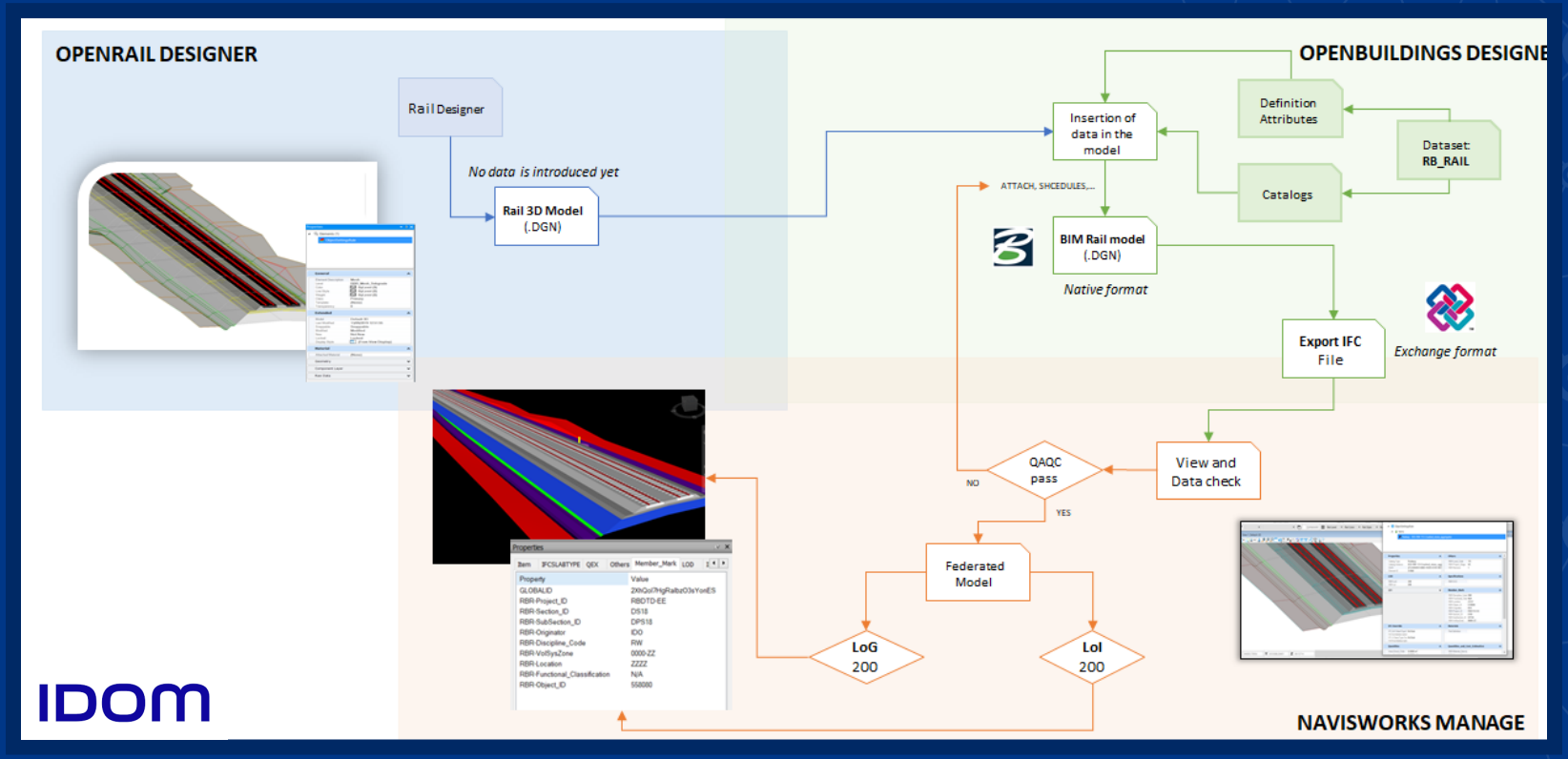
3D models from Architectural, landscaping and visual identity design guidelines as part of Design Guidelines



Discipline models – workflow for BIM models



Discipline models – workflow for BIM models



EIROPAS
DZELZCEĻA
LĪNIJAS
First acknowledgements
RIX Airport
Station

First acknowledgements

01

Set clear requirements

BEP and TIDP

It must correspond to BIM EIR and it shall be agreed during the Inception phase, but must be updated frequently.

VE, MD and DTD stages – must be renewed and followed.

02

Follow the progress

Client's task

Client must follow the progress. Client must be involved and must have/develop the knowledge. Client must understand what is being delivered. Dedicated team must be assigned (for now).

03

Everybody must learn

Client and Consultant

Teams on both sides must learn. Early stages of the project (VE) serves as «test ground» for Master and Detailed Technical Design stages.

04

Demand the results

Contract must be fulfilled

«…we usually don't do it this way…» is not acceptable.

If the rules are agreed, they must be follwed – on both sides. Contract obligations are for both parties.

First acknowledgements

05

Flexibility

To a certain degree it's good

Too much flexibility gives room for misinterpretation = no rules.

Communication is key.

06

Big picture

Client must work with it in mind

Consultants come, do their work and go. Client must think about the goals to be achieved with Digitalization. BIM just to have BIM is not a goal.

07

BIM is not alone

AIM, GIS, etc.

Digitalization should be the priority. Modern asset management, digital tools and IT minded engineers.

08

It's not easy

New things are hard

It takes time and effort. It's easy to loose the target and give up. Right people help, but most don't. Right people are hard to find.

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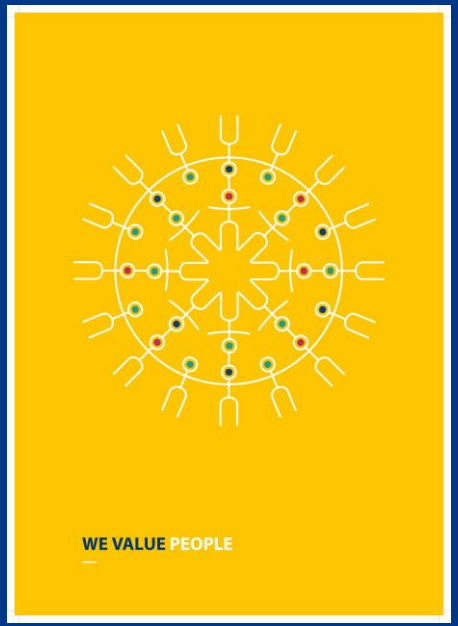
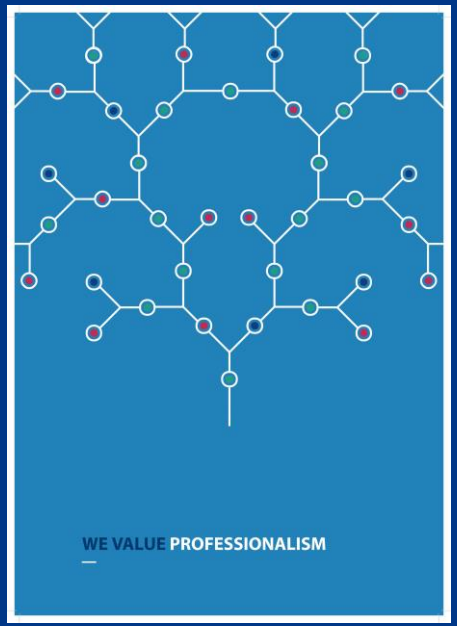
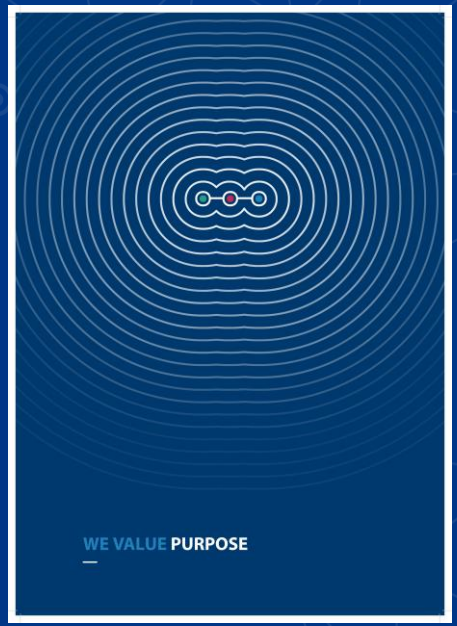




Kiitos!

Thank you!

Aitäh!

Paldies!

Ačiū!